TRIGONOMETRICAL SURVEY

FOR THE

NEW MAP OF MARYLAND.

1841.

TO THE HONORABLE

THE GENERAL ASSEMBLY OF MARYLAND:

THE Topographical Engineer, understanding that the past and present position of the Work which he has in charge has not been represented with sufficient explicitness in the Reports which he had the honor to make to the Executive in both the years 1839 and 1840, begs leave respectfully to lay before the General Assembly for their consideration, a statement of the

Principal Facts connected with the Trigonometrical Survey for a New Map of Maryland.

1. The Committee of Internal Improvement in 1834, after full hearing and discussion, and the General Assembly in the same year at their suggestion, concluded that a Trigonometrical Survey upon recognized scientific principles was the only method to be adopted to guarantee the accuracy of the New Map: and the probable opportunity, then existing, of connecting such a survey with the Coast survey of the United States, seemed to answer the conditions of a due economy in its execution.

2. The formalities of the connection of the two works were effected in the course of the same year, 1834. The details were left to be adjusted between the Superintendent of the Coast survey and the Topographical Engineer. They may be stated as being mutually advantageous to both parties, and in view of the great value of Mr. HASSLER's services, to Maryland in particular. Of course it results, that the State makes a considerable economy in the work so joined, above what she could possibly expect if she did the whole single-handed.

3. The eastern verge of the State was, in the same year, 1834, surveyed (though for another purpose specially, viz: an inland navigable communication between the mouths of the Chesapeake and Delaware bays,) in a manner to render the survey communi-

cable for the joint works. And in 1835, amid the execution of various local surveys in distant parts of the State, the important fact was established by a series of signals which the Topographical Engineer erected and observed from, that a suitable junction could be made between the survey in Maryland and the most southern points then existing of the coast survey. As this connection has to be made over the low-lands of Delaware and New Jersey, it was a part of the work expected to be attended with great difficulty, and the determination of the question, therefore, of much interest.

4. It became probable in 1836, that the coast survey would be kept to the northward of Maryland for a year or two longer, by reason of the pressing calls of districts in that direction, which had been already partially surveyed and which it was interesting to complete. In this case, for instance, was the harbor and bay of New York; whose explorations under the accuracy of the methods applied in the coast survey resulted so brilliantly two years ago in the discovery of a new and safer channel.

5. Therefore after spending the year 1836 in making divers surveys of a local character, which were required by the Legislature, but which formed no part of the original duties of the Topographical Engineer, that officer suggested the expedient of laying up the trigonometrical survey, until it could be taken up in the conjoint activity of the coast survey; and in fact so did, retaining the discretion of resuming it when the proper period should arrive. In that condition, the work has remained from the beginning of 1837 until 1840. The commissions have been annually expedited to the officer; but the salary lies uncalled for in the treasury of the State.

6. But though the reciprocity in the tenure of the office was thus broken, the Topographical Engineer has not acted as if acquitted from exercising some of its appropriate functions: and in this manner, the Maps and illustrations of the several annual Reports of the Geologist, (which in justice to the artist, making the engravings from the drawings, must be said to have been well executed, and which if not *valuable*, may at least be termed *laborious*,) have been gratuitous contributions to the interest of the Work, and the diffusion of useful information among the citizens of the State.

7. Even in the execution of those maps, occasion has been taken to introduce better methods: and the mode of printing lithogra-

phic maps with two colors or more, as done for Frederick county last year, and for the four lower counties in 1835, was hitherto new in America.

8. Nor were the remaining periods of apparent idleness (even when perhaps the office, with some persons, came under the odium of being a sinecure) without fruit to the advantage of the State. In part, and the officer thinks, originally came from him the suggestion of *furnishing the States of the Union with standard Weights and Measures, uniform with those of the custom-houses.* Standards of this sort are deemed worthy of being procured under the different European governments at great expense; and as the methods pursued in the manufacture and adjustment of these individual ones, have attracted the highest encomiums from such men as Gauss and Bessel, the first physico-mathematician and astronomer of the present age, the importance of their acquisition to the State need not be dwelt upon. The resolve of Congress effecting this acquisition was introduced and carried through by a late lamented fellow-citizen, Isaac McKim; but the existence of the measure may be said to have arisen from the existence of the trigometrical survey in Maryland. If the Topographical Engineer is allowed to mature his own measures, he can render the circumstances connected with this subject of still more extended benefit to the State.

9. Already in 1839, the coast survey approached the borders of Maryland: but an active co-operation of the Topographical Engineer did not seem to him yet absolutely required; and indeed, he was absent for part of the time upon his own business in Europe. But every thing necessary was done in his correspondence, for facilitating and expediting the selection of points for that survey, out of those which he had before established in 1835.

10. Also under these circumstances, as habitual with him, he did not lose sight of occasions which might be turned to use of the State, who had given him an official commission, barren by his own arrangement of all but honor; and he readily devoted part of his time to the collection of many details about the English iron works, (a subject with which he was practically familiar,) whose knowledge he supposed, from his own experience, would be advantageous to those engaged in similar pursuits in Maryland. These in part, he embodied in a manuscript report to the Executive, which the Legislature at its last session directed to be

printed, both for application to one of its purposes in being circulated among those citizens to whom its subject was of interest, and also for procuring thereby to the State Library, a medium of exchange, through which that institution might acquire some valuable augmentation. For himself he had a more extended view in its coming in illustration and enforcement of a plan whose farther statement does not seem particularly appropriate to the present document.

11. In 1840, the coast survey actually entered Maryland, and a more active co-operation became necessary than heretofore; of which due account has been already given in a communication to the Executive before referred to.

12. Among other things, was requisite the task of preparing, on a large scale, a Map which should serve as a guide in planning the triangulation and selecting suitable points for the signals. The time occupied in the execution of this, has been materially shortened by the labors performed in 1837–39, and before; but nevertheless, it was still necessary to consult new data, and to investigate and determine the principles upon which the separate portions of the old, should be brought together and joined. This may be readily conceived to require no little labor and patience.

13. The Map is now nearly complete: and but for the same circumstances of domestic misfortune which render it necessary that this statement should be made in writing and not orally, would have been ready to have been exhibited to the legislature. If the State is to be content with any thing short of the accuracy of a trigonometrical survey, what has been done is quite commensurate for the purpose: though for himself, the Topographical Engineer could never recognize it as his offspring in any other light, than a preliminary chart to aid in laying out the work of a survey.

14. Another purpose intended to be answered by this Map was in illustration, when reduced to a smaller scale, of the expected final Report of the Geologist; who proposes to express upon it the general result of his investigations. In this regard, it will be recognized as one of the best Geological Maps of any extensive territory yet extant.

15. The work of this year requiring an entire absorption of the officer's time from other pursuits of pleasure or profit, of course he thinks it suitable that he should be remunerated for it in the same manner as four years ago: and this mainly because

he does not consider it respectful to the State, that any officer should place himself in the position of saying that a systematic useful State-work was being performed gratuitously, or at a loss to the agent.

16. Money considerations have never operated and never will operate with him in matters of this kind; with which they are wholly incompatible. Otherwise, and if it were not for the motive last alluded to, he would propose (with perfect respect) to devote his time to it without compensation rather than that a work so useful and creditable to the State should be abandoned, or himself be subjected to an annual inquiry as to whether the value of only partly-finished results were overbalanced or not by the amount of the progressive outlay.

17. Even if money was an object, in the present relation it would be of little use to entertain it as such; for during the period of his taking the salary annexed by law to the office, he can safely affirm that in the direct and indirect expenses growing out of the discharge of his duties, the whole amount was annually absorbed. This is so far recognized in other similar works, that in the coast survey the Superintendent receives in addition to his *compensation* of $3,000 per annum, a further similar sum of $3,000 per annum, for *personal expenses merely*, in which are not included those of his conveyance from place to place. Nor is this in fact a profitable arrangement for him. Further, the principal assistants in the same survey, who may be supposed nearer the grade of the Topographical Engineer, (except that they are exempt from all fiscal relations and responsibility,) than the eminent personage who has been referred to, receive for *compensation* and *expenses* $4,000 per annum—their expense of conveyance in like manner not included. And hardly any incorporated company requiring the services of an Engineer to plan and conduct their works, think themselves excused from paying to such engineer, for *compensation* only, a sum exceeding, by at least fifty per cent., the amount assigned by law to the Topographical Engineer and Geologist, in lieu of compensation and expenses. But this part of the subject does not require further to be dwelt upon.

18. How far, in addition to the details already given, the view taken by the committee of investigation in February, 1838, (viz: that *the arrangements made in connection with the coast survey might be considered in the light of a contract*,) should affect the relations and permanence of the work, the Topographical Engineer does not undertake to estimate. There would be probably

no difficulty, if the State should conclude to make such an application, in procuring the assent of the United States to the rescission of the agreement—as, except in the article of expedition, the matter is nearly indifferent on that side.

19. In the work for 1841, it has already been signified to the Executive, that no additional funds will be required.

20. In 1842, it is probable that sufficient advance will be made in the triangulation, to employ some of the detail parties for running the roads, ascertaining the configuration of headlands, etc. etc. These parties will be at the expense of the State.

21. In conclusion, the Topographical Engineer has only to express his hope that in the position in which his exertions have placed and kept the trigonometrical survey for a new Map of the State, it is entitled to be regarded as a matter that should be left untouched at present by any legislative provision: and, without seeking to claim any merit for himself (for the consciousness of having fully done his duty is his reward) it may be considered that the past action of the officer is a sufficient guarantee of the work's continuing to be conducted with a proper attention to the interests of the State, without interrupting it by annual threats of reformed legislation that only tend to unfit him for his duties in his proper sphere.

J. H. ALEXANDER.

BALTIMORE, 2 *February*, 1841.